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EXAMINER
WOLDEMARIAM, AKILILU K

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2624	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>08 July 2008</u>.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-22</u> is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) <u>1-22</u> is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on <u>01 June 2004</u> is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) ☐ All b) ☐ Some * c) ☐ None of:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____.
      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date <u>06/01/2004</u>.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1.   In view of the Appeal Brief filed on 07/08/2008, PROSECUTION IS HEREBY

REOPENED. New ground of rejection set forth below.

To avoid abandonment of the application, appellant must exercise one of the

following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply

under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed

by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and

appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth

in 37 CFR 41.20 have been increased since they were previously paid, then appellant

must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by

signing below

Claim Rejections - 35 USC § 112

2.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of
> making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the
> art to which it pertains, or with which it is most nearly connected, to make and use the same and shall
> set forth the best mode contemplated by the inventor of carrying out his invention.

3.   Claims 1 and 8 are rejected under 35 U.S.C. 112, first paragraph, as failing to

comply with the written description requirement. The claim contains subject matter

which was not described in the specification in such a way as to reasonably convey to

one skilled in the relevant art that the inventor(s), at the time the application was filed,

had possession of the claimed invention.   Claim limitation, *"without adjusting an*

intensity of the pixel", the specification as originally filed never recited whether the

intensity of the image is changed or not changed and is not concerned with the intensity

adjustment.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed
> or described as set forth in section 102 of this title, if the differences between the
> subject matter sought to be patented and the prior art are such that the subject
> matter as a whole would have been obvious at the time the invention was made
> to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was
> made.

5.   Claims 1-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin

et al., "Lin" (U.S. Publication number 2002/0076103 A1) in view Applicant's admitted

prior art " background section" .

Regarding claims 1 and 8, *Lin discloses* a pixel classification method and

apparatus *(see item 46, fig.7, classification means)*, comprising:

determining a background intensity level of an image *(see paragraph [0041], the*

output of the block based segmentation module 200 preferably is a three-layered mixed

raster content file. Preferably, these layers represent background, foreground and

[0047] and [0052] the image data comprises multiple scanlines of pixel image data,

each scanline typically including intensity information for each pixel within the scanline.

Typical image types include graphics, text, low-frequency halftone, high-frequency

halftone, contone, etc).

classifying a pixel of the image (*see item 46, fig.7 classification means and*

paragraph [0057] the statistics are examined in an attempt to classify each window.

Windows that appear to contain primarily a single type of image data are classified

according to their dominant image types); and without adjusting an intensity of the pixel

(*see items 306 and 308, fig.5, reduced resolution is not reducing pixel intensity,*

reducing resolution by definition is reducing the number of pixel in image and not the

pixel values);

checking confirming the classification of the pixel based on the determined

background intensity level of the image by comparing the intensity of the pixel with the

determined background intensity level (*see paragraph [0053], each pixel is examined*

and preliminary determination is made as to the image type of the pixel. In addition, the

intensity of each pixel is compared to the intensity of its surrounding neighboring pixels.

A judgment is made as to whether the intensity of the pixel under examination is

significantly different than the intensity of the surrounding pixels);

determining if reclassification is required; and reclassifying the pixel when

reclassification is required (*see paragraph [0054] and [0059] if a pixel is within a window*

that was classified as "mixed" during the first pass, micro-detection, macro-detection

and windowing steps performed during the second pass are used to assign an image

type to the pixel).

Lin does not disclose the background intensity level being based on substantially all of the pixels of the image.

However, Applicant's admitted prior art discloses conventionally background detection is performed by sampling pixel values either with a sub-region of the document or across the whole document (i.e., being based on substantially all of the pixel values (intensity level) of the image *(see paragraph [0012])*

It would have been obvious to ordinary skill in the art at the time when the invention was made to use Applicant's admitted prior art teachings to modify Lin's method by detecting the background based on substantially all of the pixels' intensity level of the image in order to more accurately reproduce the image, *[Applicant's admitted prior art see paragraph [0009] lines 6-10].*

Regarding claim 2, *Lin further discloses* the pixel classification method of claim 1, wherein the determining step comprises determining a white point of the image *(see paragraph [0071] like wise, a common type of image is text of different colors on a white background),* and Applicants admitted prior art further discloses determining at least one characteristic (background of substantially all of the pixel values of the image *(see paragraph [0012] conventionally, background detection is performed by sampling pixel values either within a sub-region of document (typically, the leading edge) or across the whole document)* and combined method of Lin and Applicant's admitted prior art determining a white point of the image based on *at least one characteristic* of substantially all of the pixels of the image

Regarding claim 3, *Lin further discloses* the pixel classification method of claim 2, wherein the checking confirming step comprises comparing the intensity of the pixel with an intensity of the white point of the image *(see paragraph [0052], [0053] and [0071] likewise, a common type image is text of different colors on a white background).*

Regarding claim 4, *Lin further discloses* the pixel classification method of claim 3, further comprising wherein the reclassifying step includes reclassifying the pixel as background when the pixel is classified as a class eligible to be reclassified and the intensity of the pixel is not less than the intensity of the white point of the image *(see paragraph [0054], [0059] and [0071], likewise, a common type of image is text of different colors on a white back ground)*

Regarding claim 5, *Lin further discloses* the pixel classification method of claim 3, further comprising wherein the reclassifying step includes reclassifying the pixel as one of smooth contone and an equivalent class when the pixel is classified as background and the intensity of the pixel is less than the intensity of the white point of the image *(see paragraph [0052], [0054], [0059] and [0071], likewise, a common type of image is text of different colors on a white back ground).*

Regarding claim 6, *Lin further discloses* the pixel classification method of claim 1, wherein the identifies identifying a spread of intensity levels of the pixels of the image and determining step comprises determining an intensity level of a majority of the pixels *(see paragraph [0053] and [0056] statistics are gathered and calculated for each of the window. The statistics are based on the intensity and macro-detection results for each of the pixels within a window), Applicants admitted prior art further discloses sampling*

pixel values either within a sub-region (as disclosed by Lin) or across the whole

document image {paragraph [0012] and the combined method of Lin and Applicant's

admitted prior art is using the intensity level of substantially all pixels of the document.

Regarding claim 7, *Lin discloses* the pixel classification method of claim 4,

wherein the pixel is classified as smooth contone *(see paragraph [0052] the image data*

comprises multiple typically including intensity information for each pixel within the

scanline. Typical image types include graphics, text, low-frequency halftone, high-

frequency halftone, contone, etc and paragraph [0057])

Regarding claim 9, *Lin further discloses* the pixel classification apparatus of

claim 8, wherein the background intensity level determining module determines a white

point of the image *(see paragraph[0041] the output of the block based segmentation*

module 200 preferably is a three-layered mixed raster content file. Preferably, these

layers represent background, foreground and selectors fields and paragraph [0052]

intensity and paragraph [0071] Likewise, a common type of image is text of different

colors on a white background) and Applicant admitted prior art further discloses based

on a characteristic of substantially all of the pixels of the image *(see paragraph [0012]*

conventionally, background detection is performed by sampling pixel values either

within a sub-region of document (typically, the leading edge) or across the whole

document).

Regarding claim 10, *Lin discloses* the pixel classification apparatus of claim 9,

wherein the image processing module cheeks confirms the classification of the pixel by

comparing the intensity of the pixel with the intensity of the white point of the image *(see*

paragraph [0053], In addition, the intensity of each pixel is compared to the intensity of its surrounding neighboring pixels. A judgment is made as to whether the intensity of the pixel under examination is significantly different than the intensity of the surrounding pixels and paragraph [0071] likewise, a common type of image is text of different colors on a white background).

Regarding claim 11, *Lin discloses* the pixel classification apparatus of claim 10, wherein when a pixel is classified as a class eligible to be reclassified and the intensity of the pixel is not less than the intensity of the white point of the image, the pixel is reclassified as background *(see paragraph [0052], [0053], [0054] and [0071], Likewise, a common type of image is text of different colors on a white background).*

Regarding claim 12, *Lin discloses* the pixel classification apparatus of claim 10, wherein when a pixel is classified as background and the intensity of the pixel is less than the intensity of the white point of the image, the pixel is reclassified as smooth contone *(see paragraph [0052], [0053], [0054] and [0059] if a pixel is within a window that was classified as "mixed" during the first pass, the micro-detection, macro-detection and windowing steps performed during the second pass are used to assign an image type to pixel).*

Regarding claim 13 refer to claim 6 rejection

Regarding claim 14, *Lin discloses* the pixel classification apparatus of claim 11, wherein the pixel is classified as one of smooth contone and an equivalent class *(see paragraph [0053] and [0057] the image data comprises multiple scanlines of pixel image data, each scanline typically including intensity information for each pixel within the*

scanline. Typical image types include graphics, text, low-frequency halftone, high-frequency halftone, contone, etc).

Regarding claim 15, Lin *discloses* an image processing method, comprising:

determining a background intensity level of an image *(see paragraph [0041], the output of the block based segmentation module 200 preferably is a three-layered mixed raster content file. Preferably, these layers represent background, foreground and [0047] and [0052] the image data comprises multiple scanlines of pixel image data, each scanline typically including intensity information for each pixel within the scanline. Typical image types include graphics, text, low-frequency halftone, high-frequency halftone, contone, etc)*;

classifying a pixel of the image *(see item 46, fig.7 classification means and paragraph [0057] the statistics are examined in an attempt to classify each window. Windows that appear to contain primarily a single type of image data are classified according to their dominant image types);* and without adjusting an intensity of the pixel *(see items 306 and 308, fig.5, , reduced resolution is not reducing pixel intensity, reducing resolution by definition is reducing the number of pixel in image and not the pixel values);*

checking the classification of at least a portion of the pixels of the image based on the determined background intensity level of the image *(see paragraph [0053], each pixel is examined and preliminary determination is made as to the image type of the pixel. In addition, the intensity of each pixel is compared to the intensity of its surrounding neighboring pixels. A judgment is made as to whether the intensity of the*

pixel under examination is significantly different than the intensity of the surrounding

pixels);

reclassifying pixels based on results of the checking step*(see paragraph [0054]*

and [0059] if a pixel is within a window that was classified as "mixed" during the first

pass , micro-detection, macro-detection and windowing steps performed during the

second pass are used to assign an image type to the pixel); and

processing image data of the pixels of the image based on the classification of the

pixel *(see paragraph [0063] the page segmentation and classification means 40 may*

also include image processing means 48 for processing the image data after each of

the pixels has been labeled with an image type and as belonging to a particular

window).

Lin does not disclose the background level being based on substantially all of the

pixels of the image.

However, Applicant's admitted prior art discloses conventionally background

detection is performed by sampling pixel values either with a sub-region of the

document or across the whole document (i.e., being based on substantially all of the

pixel values (intensity level) of the image *(see paragraph [0012])*

It would have been obvious to ordinary skill in the art at the time when the invention

was made to use Applicant's admitted prior art teachings to modify Lin's method by

detecting the background based on substantially all of the pixels' intensity level of the

image in order to more accurately reproduce the image, *[Applicant's admitted prior art*

see paragraph [0009] lines 6-10].

Regarding claim 16, *Lin further discloses* the image processing method of claim 15, further comprising storing a label associated with each of the pixels, wherein the label of each of the pixels is based on results of the classification step and the checking step for the pixel *(see paragraph [0063] and [0064] classification means 40 may also include image processing means 48 for processing the image data after each of the pixels has been labeled with an image type and the image data obtaining means 36 could include a scanner or device for reading a stored image from a memory. The device might also include image data generation means 38 for generating image data to be segmented and classified by the two pass method),), Applicants admitted prior art further discloses sampling pixel values either within a sub-region (as disclosed by Lin) or across the whole document image {paragraph [0012] and the combined method of Lin and Applicant's admitted prior art is using* substantially all pixels of the document .

Regarding claim 17, *Lin discloses* the image processing method of claim 15, wherein classifying a pixel of the image comprises classifying the pixel as one of smooth contone, rough contone, text, background, graphics and halftone *(see paragraph [0052] and [0057] the image data comprises multiple scanlines of pixel image data, each scanline typically including intensity information for each pixel within the scanline. Typical image types include graphics, text, low-frequency halftone, high-frequency halftone, contone, etc).*

Regarding claim 18, refer to claim 2 rejection.

Regarding claim 19, *Lin discloses* the image processing method of claim 18, wherein the checking step comprises comparing an intensity of the pixel with an

intensity of the white point of the image (*see paragraph [0053] each pixel is examined and preliminary determination is made as to the image type of the pixel. In addition, the intensity of its surrounding neighboring pixels. A judgment is made as to whether the intensity of the pixel under examination is significantly different than the intensity of the surrounding pixels and [0071], likewise, a common type of image is text of different colors on a white background*).

Regarding claim 20, *Lin discloses* the image processing method of claim 19, wherein when the pixel is classified as smooth contone and the intensity of the pixel is not less than the intensity of the white point of the image, the pixel is reclassified as background (*see paragraph [0052], [054] and [0057] the statistics are examined in an attempt to classify each window. Windows that appear to contain primarily a single type of image data are classified according to their dominant image types. Windows that contain more than one type of image are classified as "mixed"*).

Regarding claim 21, *Lin discloses* the image processing method of claim 19, wherein when the pixel is classified as background and the intensity of the pixel is less than the intensity of the white point of the image, the pixel is reclassified as smooth contone (*see paragraph [0052], [054] and [0057] the statistics are examined in an attempt to classify each window. Windows that appear to contain primarily a single type of image data are classified according to their dominant image types. Windows that contain more than one type of image are classified as "mixed"*).

Regarding claim 22, Applicant's admitted prior art further *discloses* the image processing method of claim 15, wherein the portion of the pixels comprises substantially

all of the pixels of the image *(see paragraph [0012] conventionally, background detection is performed by sampling pixel values either within a sub-region of document (typically, the leading edge) or across the whole document).*

Conclusion

6.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to AKLILU k. WOLDEMARIAM whose telephone number is (571)270-3247. The examiner can normally be reached on Monday-Thursday 6:30 a.m-5:00 p.m EST.

     If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samir Ahmed can be reached on 571-272-7413. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

     Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Samir Ahmed,
Examiner
Art Unit 2624

A.W.
Examiner, Art Unit 2624
08/25/2008

/Samir A. Ahmed/

Supervisory Patent Examiner, Art Unit 2624